

Kentucky Department for Environmental Protection



Protecting and Enhancing Kentucky's Environment

Management Plan 2002 – 2003

The Department for Environmental Protection envisions a healthy and productive Commonwealth with balanced stewardship of the land, air, and water. We envision a Commonwealth where future generations enjoy an environment as good or better than the present.

About this Document

In 1997, the Kentucky Department for Environmental Protection established a strategic plan that detailed the department's vision and ideologies. The plan defines the methodology the department will employ when making the critical environmental decisions that effect Kentucky's natural resources and citizens. One of the primary themes contained in the strategic plan is an emphasis on results. The department clearly stated that its decisions would be based on environmental needs, that the department would track those needs over time, and that the department would verify through measurement that the necessary improvements and protections had been achieved.

This document is the department's Management Plan, which takes the strategic plan one step farther than vision and ideology. The Management Plan documents the specific outcomes that the department will strive to achieve over time. These outcomes are organized by area of interest and have timelines for achievement. The Management Plan also identifies the measures the department will use to track its progress in achieving its objectives and the measures that will be used to evaluate the health of Kentucky's environment.

This management plan is divided into four components:

Mission, Vision, Principles - The mission, vision and principles have been lifted from the department's strategic plan to provide the reader with a general idea of the standards the department strives to apply when implementing its programs and responsibilities.

Desired Environmental Outcomes - The department is committed to protecting and improving Kentucky's environment. The desired environmental outcomes contained in this document detail the milestones the Department would like to see achieved in this effort. Ultimate success may be limited by the amount of resources and authority provided to the department. However, the department is committed to doing all it can within its control to fulfill these responsibilities.

Desired Behavioral Outcomes - Kentucky's citizens and industries play a large role in defining the quality of Kentucky's environment. The desired behavioral outcomes listed in this document identify the essential behaviors the department would like to see realized in Kentucky. To meet the milestone listed in these outcomes, it will take a committed partnership between government, citizens, and industry.

Environmental Indicators - In order for the department to meet Kentucky's changing environmental needs, it is critical that the department understand Kentucky's existing and emerging environmental conditions. The environmental indicators listed in this document are measures that the department will use to track the quality of Kentucky's environment and will be used to characterize environmental conditions.

The Natural Resources and Environmental Protection Cabinet provides, on request, reasonable accommodations including auxiliary aids and services necessary to afford an individual with a disability an equal opportunity to participate in all services, programs and activities. To request materials in an alternative format, contact the Department for Environmental Protection, 14 Reilly Road, Frankfort, KY 40601, (502) 564-2150. Hearing- and speech-impaired persons can contact the agency by using the Kentucky Relay Service, a toll-free telecommunication device for the deaf (TDD). For voice to TDD, call 1/800-648-6057. For TDD to voice, call 1/800-648-6056.

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Kentucky Department for Environmental Protection

Mission, Vision, and Principles

MISSION

To Protect and Enhance Kentucky's Environment

VISION

The Department for Environmental Protection envisions a healthy and productive Commonwealth with balanced stewardship of the land, air and water. We envision a Commonwealth where future generations enjoy an environment as good or better than the present.

PRINCIPLES

The department will make sound decisions that earn the public's trust. The decisions made by the department will be prudent, defensible, and consistent with the department's mission, and in the best interest of the Commonwealth.

The department will focus on environmental results rather than programs or procedures. The success of environmental programs will be measured in terms of achieving desirable environmental benefits, not in the number of staff or the size of budgets. We will evaluate programs and procedures in relation to their contribution to the mission.

The department will use good scientific information to aid in its decision making. The foundation on which environmental protection programs are constructed is an understanding of the causes and effects resulting from actions that impact the environment. Scientific information is critical to the assessment and evaluation of existing environmental conditions and the determination of the effectiveness of our programs. We will employ generally accepted and applicable scientific methods and processes to accomplish our mission.

The department will consider the range of environmental benefits and consequences of proposed actions before making final decisions. Good public policy encourages government agencies to promote actions that maximize benefits to society while minimizing adverse effects. While individual statutes, regulations, programs and organizational units may have a narrow focus, we will always consider the benefits and consequences of our actions to the environment as a whole.

The department will evaluate its performance using meaningful criteria. We will require accountability from our managers, supervisors, and staff in the continuing evaluation of program performance. We will gauge effectiveness based on actual program results.



Outcome 1.1.1 **Maintain compliance with the National Ambient Air Quality Standards for coarse particulate, 1-hour ozone, sulfur dioxide, oxides of nitrogen, carbon monoxide, and lead, in areas that are in attainment.**

Performance Measure: The number of days observed each year where a National Ambient Air Quality Standard violation was detected for coarse particulate, 1-hour ozone, sulfur dioxide, oxides of nitrogen, carbon monoxide, or lead as measured at Kentucky's air monitoring stations.

Performance Measure: The number of areas designated as non-attainment for the coarse particulate, 1-hour ozone, sulfur dioxide, oxides of nitrogen, carbon monoxide, or lead National Ambient Air Quality Standards.

Outcome 1.1.2 **Maintain compliance with the Kentucky Ambient Air Quality Standards for hydrogen sulfide and hydrogen fluoride.**

Performance Measure: The percentage of facilities with permit conditions relating to hydrogen sulfide and hydrogen fluoride that remain in compliance with those permit requirements.

Outcome 1.1.3 **Reduce the ambient air concentrations of coarse particulate matter and oxides of nitrogen by 25% from 1994 levels throughout Kentucky by no later than December 31, 2010. Reduce sulfur dioxide by at least 15% and fine particulate matter by 20% from 1999 levels by no later than December 31, 2010.**

Performance Measure: The percent reduction in ambient air concentrations from 1994 levels for particulate matter and oxides of nitrogen as detected at Kentucky air monitoring sites.

Performance Measure: The percent reduction in ambient air concentrations from 1999 levels for sulfur dioxide and fine particulate matter as detected at Kentucky air monitoring sites.

Outcome 1.1.4 **Attain the National Ambient Air Quality Standards for 8-hour ozone and fine particulates by December 31, 2010, in each area where the standard is not met. Thereafter, maintain the standard. (Objective 1.1 - Cabinet Strategic Plan)**

Performance Measure: The number of days observed each year where a National Ambient Air Quality Standard violation was detected for 8-hour ozone or fine particulates as measured at Kentucky's air monitoring stations.

Performance Measure: The number of counties designated as non-attainment for the 8-hour ozone or fine particulate National Ambient Air Quality Standards.



Outcome 1.1.5 By December 31, 2010, improve the visibility in Mammoth Cave National Park by 3 deciviews from 2001 levels, improve visibility to background concentrations by 2060, and contribute to visibility improvements in Federal Class I areas in the region, by the same levels.

Performance Measure: The change in visibility as detected at visibility monitoring sites.

Outcome 1.1.6 Reduce the ambient air concentration of mercury 30% by December 31, 2010, from 2003 levels.

Performance Measure: The change in mercury concentrations as detected at ambient mercury monitoring sites.

Outcome 1.1.7 By December 31, 2010, prevent the emission of air pollutants in amounts that cause risks to humans or the environment of more than one excess cancer incidence in one million or that cause a hazard index of more than 1.0. Reduce emissions to a lower level if required by the National Emission Standard for Hazardous Air Pollutants or the Asbestos Hazard Emergency Response Act.

Performance Measure: The percentage of ambient air toxics monitoring samples where all monitored compounds were below U.S. EPA Region 9 Preliminary Remediation Goal levels.

Performance Measure: The percentage of facilities that demonstrate, through either modeling or risk based analysis, compliance with federal and state hazardous air pollutant requirements and demonstrate, through either modeling or risk based analysis, that facility air emissions do not exceed U.S. EPA Region 9 Preliminary Remediation Goal levels beyond the facility property line.



Desired Environmental Outcomes **WATER QUALITY**

- Outcome 1.2.1** By December 31, 2006, restore 25% of the miles of streams and acres of lakes that did not meet the water quality standards in 1998 (as reported on the 303(d) and 305(b) lists) back to the water quality standards; restore 45% of those streams by 2010 and restore 100% of those streams by 2018.
- Performance Measure:* The total number of stream miles and lake acres that do not meet the water quality standards as reported on each 305(b) Report.
- Performance Measure:* The yearly percentage of stream miles and lake acres that were originally reported on the 1998 303(d) list and still remain impaired.
- Outcome 1.2.2** Restore 80% of the miles of streams and acres of lakes on future 303(d) and 305(b) lists within ten years of listing.
- Performance Measure:* For each 303(d) list published after 1998, the yearly percentage of impaired stream miles and lake acres that were originally reported on that year's 303(d) list and still remain impaired.
- Outcome 1.2.3** Maintain and improve water quality in streams and lakes where assessment demonstrates that these waters already meet water quality standards.
- Performance Measure:* The percentage of stream miles and lake acres currently meeting designated uses that have improved in quality, have degraded, or have remained the same since their last assessment.
- Outcome 1.2.4** By 2010, restore or manage contamination at 25% of the sites with known groundwater contamination as listed on the 2001 inventory of known contaminated groundwater sites.
- Performance Measure:* The yearly percentage of sites initially listed on the 2001 inventory of known contaminated groundwater sites where groundwater has been restored or the risks have been managed.
- Outcome 1.2.5** Maintain groundwater quality in areas where assessment demonstrates that these waters already meet or exceed the groundwater quality standards.
- Performance Measure:* The number of new contaminated groundwater sites confirmed each year by the Department.
- Performance Measure:* The change in groundwater quality at groundwater monitoring network locations monitored by the Department.



Outcome 1.2.6 **Prevent illnesses and fatalities due to failures by regulated public water supplies to provide safe, potable water to the public.**

Performance Measure: The number of drinking water standard exceedances reported annually at public water supplies and the population potentially affected.

Performance Measure: The number of sampling events reported each year at public water supplies where a drinking water standard exceedance was detected.

Performance Measure: The number of boil water advisories issued each year by public water supplies.

Outcome 1.2.7 **Prevent a net loss of acres of jurisdictional wetlands from the known acreage as of December 23, 1985.**

Performance Measure: The annual net change in the acres of jurisdictional wetlands.

Outcome 1.2.8 **Prevent the failures of regulated dams in order to prevent fatalities and minimize economic losses.**

Performance Measure: The yearly number of failures or breaches at regulated dams, by dam hazard classification.

Outcome 1.2.9 **Minimize fatalities and economic losses due to flooding.**

Performance Measure: The yearly number of fatalities resulting from flooding.

Performance Measure: The yearly estimated economic losses resulting from flooding.



Desired Environmental Outcomes **LAND QUALITY**

Outcome 1.3.1 **By December 31, 2010, manage contamination at 100% of the contaminated soil sites as listed on the 2001 inventory of known contaminated soil sites.**

Performance Measure: The yearly percentage of contaminated soil sites that were listed on the 2001 inventory where soil quality has been restored or the risks have been managed.

Outcome 1.3.2 **Eliminate all illegal dumps by December 31, 2010 (Objective 1.4 - Cabinet Plan)**

Performance Measure: The yearly estimated number of illegal dumps remaining in Kentucky.

Performance Measure: The yearly number of illegal dumps removed from Kentucky's landscapes.

Outcome 1.3.3 **Maintain soil quality in locations where assessment demonstrates that these soils already meet soil quality standards.**

Performance Measure: The number of new contaminated soil sites confirmed each year by the Department.

Performance Measure: The change in soil quality at locations monitored by the Department.

Outcome 1.3.4 **Acquire and manage natural areas that contain high quality examples of all of Kentucky's natural community types and provide habitat for populations of all known endangered or threatened rare species. (Objective 1.6 - Cabinet Plan)**

Performance Measure: The number of acres of natural areas acquired and managed by the Cabinet (Cabinet Measure).

Performance Measure: The number Kentucky's natural community types and rare and endangered species that do not reside in areas acquired and managed by the Cabinet (Cabinet Measure).



Outcome 2.1.1 By December 31, 2007, reduce the amount of solid waste disposed in Kentucky by 20% from 2001 levels. (Objective 3.5 - Draft Cabinet Plan)

Performance Measure: The tons of solid waste disposed at Kentucky landfills, reported annually by solid waste type.

Outcome 2.1.2 By December 31, 2010, realize a 50% increase in the amount of solid waste recycled in Kentucky from 2001 levels.

Performance Measure: The tons of recycled solid waste that would have otherwise been illegally disposed or disposed in a Kentucky landfill, reported annually.

Outcome 2.1.3 By December 31, 2007, reduce the amount of hazardous waste generated in Kentucky by 10% from 2001 levels.

Performance Measure: The tons of hazardous waste generated in Kentucky each year.

Outcome 2.1.4 By December 31, 2007, ensure that all hazardous and special waste generated in Kentucky is either beneficially reused or properly disposed.

Performance Measure: The number of violations identified in Kentucky annually for the illegal storage or disposal of special or hazardous waste.

Outcome 2.1.5 By December 31, 2007, ensure that there is a net decrease in the amount of pollutants released into the environment from 2001 levels.

Performance Measure: The change in the estimated amount of pollutants released annually in Kentucky, by media.

Outcome 2.1.6 By December 31, 2005, decrease the number and severity of unauthorized releases by 5% from 2001 levels.

Performance Measure: The annual number of documented notifications, reported by incident priority.

Outcome 2.1.7 By December 31, 2005, decrease the number of illegal open burning occurrences by 50% from 2001 levels.

Performance Measure: The annual number of illegal open burning events confirmed by the Department.

Outcome 2.1.8 By December 31, 2010, reduce the amount of roadside litter by 50% from 2001 levels.

Performance Measure: The estimated amount of roadside litter per highway mile.



GROWTH AND DEVELOPMENT

- Outcome 2.2.1** By December 31, 2005, decrease the number of households that did not have access to reliable, potable water in 2001 by 25%. Ensure that all citizens have access to reliable, potable water by December 31, 2020. (Objective 2.1 - Cabinet Plan)
- Performance Measure:* The number of Kentucky households without access to reliable, potable water.
- Outcome 2.2.2** By December 31, 2005, decrease the number of households that did not have access to reliable, effective wastewater treatment and disposal in 2001 by 25%. Ensure that all citizens have access to reliable, effective wastewater treatment and disposal by December 31, 2020. (Objective 2.2 - Cabinet Plan)
- Performance Measure:* The number of Kentucky households without access to reliable, effective wastewater treatment.
- Outcome 2.2.3** By 2025, all buildings located in the 100-year floodplain will meet floodplain construction requirements in order to minimize human injury as well as current and future economic losses as the result of a flood.
- Performance Measure:* The number of buildings located in the 100-year floodplain that are not constructed in a manner that minimizes flood hazard and damage.
- Outcome 2.2.4** Bring all state-owned, high-hazard dams up to current engineering safety standards by December 31, 2008. All high-hazard dams will meet current engineering standards by December 31, 2010. (Objective 2.3 - Cabinet Plan)
- Performance Measure:* The annual percentage of state-owned, high-hazard dams meeting current engineering standards.
- Performance Measure:* The annual percentage of all high hazard dams meeting current engineering standards.
- Outcome 2.2.5** By December 31, 2005, the Commonwealth will manage its water supply resources using water budgets prepared for each of Kentucky's major water basins. (Objective 2.4 - Cabinet Plan)
- Performance Measure:* The percentage of large watersheds (hydrologic unit code 8) where the Department is managing the watershed's water supply resources using an established water budget.
- Outcome 2.2.6** Prevent uncontrolled development in locations that are unsuitable due to existing environmental conditions.
- Performance Measure:* The number of structures located in environmentally sensitive areas as defined by the Department sensitive area inventory.



Outcome 2.3.1 **At any given time, 85% of all facilities will be in compliance with applicable environmental laws and regulations.**

Performance Measure: The percentage of regulated entities currently in violation with one or more Department requirements, reported annually.

Outcome 2.3.2 **Within 1 year after a violation is identified, 100% of the facilities that are out of compliance will return to compliance or will operate in accordance with a Department approved plan designed to return them to compliance.**

Performance Measure: The percentage of violations that are resolved within a year by the facility returning to compliance or operating under a Department approved plan that is designed to return them to compliance.



ENVIRONMENTAL CITIZENSHIP

Outcome 2.4.1 By December 31, 2010, decrease the average water consumption rate per capita by at least 15% from 2001 levels.

Performance Measure: Kentucky's annual treated water consumption rate per capita.

Outcome 2.4.2 By December 31, 2010, encourage a net decrease in the average energy consumption rate per capita from 2001 levels.

Performance Measure: The annual residential energy use per capita (Cabinet Measure).

Performance Measure: The overall energy intensity of the Kentucky economy: calculated by dividing the annual Kentucky energy consumption by the real gross state product (Cabinet Measure).

Outcome 2.4.3 Achieve statewide, citizen participation in a solid waste collection system by December 31, 2010. (Objective 3.4 - Cabinet Plan)

Performance Measure: The percentage of Kentucky's households that participate in a curbside solid waste collection system.

Outcome 2.4.4 By December 31, 2010, all Kentucky residents will have reasonable access to solid waste recycling opportunities.

Performance Measure: The percentage of Kentucky households that have access to door-to-door solid waste recycling opportunities.



Environmental Quality Indicator

An interpretation or assessment of environmental data that provides useful information about patterns or trends in environmental conditions (which include human health, quality of life, and ecological integrity).

Air Quality

- The change in pollutant concentrations detected at air monitoring sites
- The number of days that NAAQS violations were observed each year
- The change in rainfall pH detected at acid rain monitoring sites
- The change in visibility as detected at visibility monitoring sites

Water Quality

- The change in pollutant concentrations detected at surface water monitoring sites
- The change in pollutant concentrations detected at ambient groundwater monitoring sites
- The annual net gain or loss of jurisdictional wetlands
- The annual net gain or loss of stream miles
- The miles of streams that are impaired by pollutants
- The acres of lakes that are impaired by pollutants
- The percentage of ambient groundwater monitoring sites that show impairment
- The changes in groundwater quality at locations known or likely to be impacted

Land Quality

- The changes in soil quality at reference monitoring sites
- The changes in soil quality at locations known or likely to be impacted
- The acres of land with contaminated soils
- The amount of soil lost due to erosion

Human Health and Quality of Life

- The percentage of Kentucky's population that live in areas meeting NAAQS
- The population potentially affected by exceedances of Maximum Contaminant Levels (MCLs) or action levels in drinking water
- The population affected by boil water advisories
- The percentage of population served by public water supplies that have inadequate water sources during low flow conditions
- The number of non-workplace related illnesses that have been specifically linked to an environmental condition
- The acres/miles of water bodies having a fish consumption advisory
- The acres/miles of water bodies having a swimming advisory
- The number of facilities with known pollution where human exposures are controlled as a result of implementing a management technique
- The projected risk anticipated for a region, based on an area's environmental pollutants

Ecological Health and Quality of Life

- The number of endangered and threatened species in Kentucky and the population of each species
- The changes in regional biodiversity levels including macro-invertebrates, vertebrates, and vegetation diversity
- The acreage and number of land set-asides, such as nature preserves, wetland banks, and parks
- Meteorological trends, including precipitation and temperature



Behavioral Indicators

An interpretation or assessment of data that provides useful information about human activities that affect or are affected by the environment.

Pollution Generation and Management

- The amount of waste generated in Kentucky annually, by type
- The amount of waste imported into Kentucky annually, by type
- The amount of waste exported from Kentucky annually, by type
- The amount of waste properly treated, stored, and disposed in Kentucky annually, by type
- The amount of regulated substances released into the environment from permitted activities, by media
- The amount of regulated substances released into the environment from unpermitted activities, by media
- The amount of waste reduction realized through pollution prevention in Kentucky annually, by type
- The amount of waste recycled or reused in Kentucky annually, by type
- The number and severity of environmental incidents reported in Kentucky annually, by type
- The annual number and volume of illegal dumps discovered, removed, or remaining in Kentucky
- The average amount of litter per road mile

Growth and Development

- The number of people living/working in Kentucky
- Population density, by county and by metropolitan area
- The annual Gross Domestic Product, by sector
- The number of regulated entities, by type
- The percentage of the population connected to public water supplies
- The percentage of the population connected to public sewer systems
- The miles of water supply and wastewater lines in Kentucky
- Land cover trends, by land cover types (green space, undisturbed land, urbanized, etc.)
- The volume and number of land areas used for waste management purposes
- Percentage of Kentucky households participating in a solid waste collection system
- The annual Kentucky energy production, by type of fuel source
- The percentage and number of Kentucky citizens living in a 50- or 100-year floodplain
- The percentage and number of Kentucky citizens who would be threatened by high hazard dams if a failure would occur
- The number of acres encompassed by 100 year floodplains

Compliance

- The compliance rates of regulated facilities, sorted by violation type and degree of environmental impact
- The percentage of facilities that return to compliance after having been in violation

Environmental Citizenship

- The average amount of waste generated annually per person and by each industrial sector
- The average amount of energy consumed annually per person and by industrial sector, by energy type
- The number of vehicle miles traveled annually in Kentucky
- The percentage of Kentucky citizens who recycle a portion of their waste
- The average water consumption annually per person
- The average gasoline consumption per vehicle
- The number of people involved annually in volunteer environmental projects
- The environmental literacy of Kentucky citizens
- The number of people who attend Department sponsored public meetings/hearings